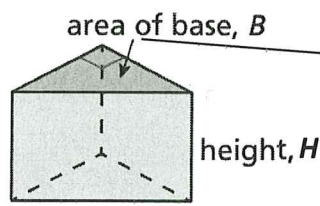


# Core Concept

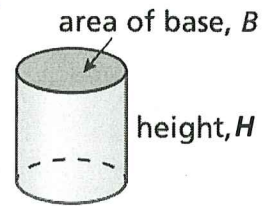
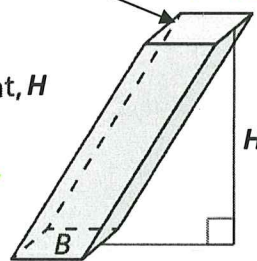
A **prism** is a solid that has two faces that are parallel and congruent. The lateral faces of a prism are rectangles or parallelograms.

A **cylinder** is a solid that has two faces that are parallel and "right"



triangular prism  
Volume:  $V = BH$

oblique rectangular prism



$V = BH = \pi r^2 H$   
cylinder or "right" cylinder

For 1-4: State the name of each solid and find the volume.

1) **Triangular Prism**

$V = BH$   
 $V = \frac{1}{2} b \cdot h \cdot H$   
 $V = \frac{1}{2} (3)(4)(8)$   
 $V = 48 \text{ m}^3$

2) **"oblique" cylinder**

$V = BH$   
 $V = \pi r^2 H$   
 $V = \pi 4^2 \cdot 7$   
 $V = 112\pi \text{ cm}^3$

3) **rectangular prism**

$V = BH$   
 $V = b \cdot h \cdot H$   
 $V = 15(4.5)(9)$   
 $= 607.5 \text{ mm}^3$

4) **hexagonal prism**

$V = BH$   
 $V = \frac{1}{2} a p \cdot H$   
 $V = \frac{1}{2} (4\sqrt{3})(48)15.5$   
 $V = 1488\sqrt{3} \text{ m}^3$   
 $V \approx 2577.29$

Perim  $B \cdot 6 = 48$

\*Use trigonometry or special right triangles to find the length of the apothem.

$a = 4\sqrt{3}$   
 $\tan 60^\circ = \frac{a}{4}$   
 $a = 4 \tan 60^\circ$   
 $a \approx 6.9282 \dots$

5) Find the missing dimension. Write and solve an equation. Show work.

Volume =  $2700 \text{ yd}^3$

$V = BH$   
 $V = b \cdot h \cdot H$   
 $2700 = 12 \cdot 15 \cdot H$   
 $2700 = 180H$   
 $15 = H$

**15 yds**

6) Find the volume. Show plan, formulas, substitutions.

$V = \text{rect prism} + \text{trap prism}$   
 $V = bh \cdot H + \frac{1}{2}(b_1 + b_2)h \cdot H$   
 $V = 3 \cdot 5 \cdot 10 + \frac{1}{2}(2 + 5)(2)10$   
 $V = 150 + 70$   
 $V = 220 \text{ cm}^3$